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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/007,861	11/05/2001	Michael Persson	ANO 6129 PIUS/3159	6497

7590 02/03/2004  
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EXAMINER  
METZMAIER, DANIEL S

ART UNIT	PAPER NUMBER
1712	

DATE MAILED: 02/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/007,861

Applicant(s)

PERSSON ET AL.

Examiner

Daniel S. Metzmaier

Art Unit

1712

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 11/5/2001; 2/15/2002; & 10/6/2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1 and 26-72 is/are pending in the application.
- 4a) Of the above claim(s) 36-42, 54-60 and 64-72 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 26-35, 43-53 and 61-63 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 11/01 & 2/.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

Claims 1 and 26-72 are pending.

#### *Election/Restrictions*

1. Applicant's election with traverse of Group I in Paper filed October 6, 2003 is acknowledged. The traversal is on the ground(s) that the silica sols of Group II, claims 36-42, 54-60, and 64-72; are obtained by the process claims of Group I, claims 1, 26-35, 43-53 and 61-63. Applicants further assert; "it is not possible to produce different products by the above-referenced claimed processes nor is it possible that different processes can produce the above-referenced claimed products."

This is not found persuasive because applicants' position does not coincide with the evidence of record. Specifically, claims 69-72 do not require the process limitations as set forth in applicants' traversal. Furthermore, all the process claims do not require the compositions set forth in claims 69-72 including a specific surface area or the S-value. Furthermore, said compositions do not require the pH limitations set forth as the last step of the processes. A review of the prior art shows that at least claim 69 is not novel. Attention is directed to example 3 of Andersson et al, US 5,603,805; which discloses a sol having an S-value of 21 and a specific surface area of 897 m<sup>2</sup>/g.

To the extent applicants feel the examiner's characterization is in error, applicants should state that the methods of Andersson et al are same as those claimed or point out the differences in the Andersson et al processes that appear to make the same products claimed.

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 36-42, 54-60, and 64-72 have been withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper filed October 6, 2003.

### ***Priority***

3. Acknowledgment is made of applicant's claim for foreign priority based on the applications filed in Europe, Europe and Sweden on May 4, 1999, October 29, 1999; and May 6, 1999, respectively. It is noted, however, that applicant has not filed a certified copy of the European 99850074.8, Swedish 9901687-5, and European 99850160.5 applications as required by 35 U.S.C. 119(b).

While this is a continuation of a PCT, it is applicants' responsibility and not PCT to provide the requisite priority documents in this continuation. Please see MPEP 1896, "Chart of Some Common Differences".

### ***Specification***

4. The abstract of the disclosure is objected to because it is too long. The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. Correction is required. See MPEP § 608.01(b).

5. The disclosure is objected to because of the following informalities: applicants must update the status of parent PCT/SE00/00822 application as "now abandoned" in the cross-noting section of the specification. Please see MPEP 1895.01(II).

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 26-31 and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Johansson et al, US 5,447,604<sup>1</sup>. See column 2, line 3 to column 3, line 12, and examples. Johansson et al '604 discloses the claimed process, where Johansson et al '604 (column 2, lines 56-57) teaches "The obtained sol will hereby normally get a pH value above 10.5. This is a clear disclosure of the formation of sols alkalized to applicants' alkalizing step of a pH of at least 10. The alkalizing step for particle growth and the alkalizing step of the obtained sol read on the same alkalizing step since the claim fails to define which "obtained sol" the alkalizing step (d) refers. Said step reads on alkalizing the acid sol of step (a). Johansson et al '604 (column 3, lines 3-9) discloses particle growth occurs after alkalization for about a week and the sols are stable for months. A week of growth reads on at least 10 minutes claimed.

Example 1 discloses the use of a higher concentration sodium silicate than the acid sol formed in step (a). The addition of the sodium silicate to the acid sol reads on concentrating. The addition of sodium silicate after the pH is anywhere above 7 reads on concentrating the alkalized sol obtained according to step (b).

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<sup>1</sup> Patent Family member to WO 91/7351.

8. Claims 1, 26-30, 32 and 43-48 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Watanabe et al, US 5,100,581. Watanabe et al (claims) disclose methods of making aqueous silica sols. Watanabe et al (claim 1) discloses as patentees steps (a)-(c) the step of acidifying an alkali metal silicate to a pH at least overlapping the instantly claimed pH and at concentrations overlapping the concentrations in instant step (b). Watanabe et al (patentees claimed step (d) and (e)) discloses alkalizing the acid sol in a concentration of 2 to 6 % by weight silica and to a pH of 7 to 9 followed by heat treating at 70-100° C for a period of at least 10 minutes 20-200 hours. Said sol is further concentrated during said process step. Watanabe et al (patentees claimed step (g) recovering the sol to make the pH 8 to 10.5, which overlaps said step of alkalizing the obtained sol to a pH of at least 10.

When the prior art discloses a range that touches, overlaps or is within the claimed range, said range anticipates the range when disclosed with sufficient specificity. The prior art ranges substantially overlap the claimed ranges and therefore are anticipatory.

To the extent any one of the particular ranges or portions thereof differ from those disclosed in the Watanabe et al reference, some variation would have been expected for the advantage of process control of the silica particle formation based on the solution chemistry at any given point in time for the advantage of mitigating gelling, increasing particle growth and/or stabilizing any particular process liquid. It has been generally established the differences in concentration or temperature will not support

the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical.

Applicants' claims employ the open language "comprising" and would not exclude any further steps that may be present in the Watanabe et al reference process. The specific surface area defined in claims 29, 30, 47 and 48 would have been expected to have been inherent since the materials are made by an anticipated process. Since the same process makes the sols, the properties of said materials would have been expected to have been the same as those claimed. Furthermore, it is generally known that as the particle size of a particle decreases, the surface area increases. The particle size of the materials disclosed in the Watanabe et al reference is 10 to 30 millimicrons (nanometers, nm). This compares with the instant application particles, which are characterized as suitably having a particle size less than 10 nm, preferable 2-10 nm.

To the extent the specific surface area of the sol differs from the sols produced in the Watanabe et al reference, Watanabe et al (column 7, lines 53 et seq) discloses the particle size of 3 to 20 nm are suitable and is calculated from the specific surface area. Watanabe et al clearly contemplates variation of the particle size including applicants' preferred particle size range and the specific surface area, which said particle size is calculated. It would have been obvious to one of ordinary skill in the art at the time of applicants' invention to vary the particle size and thus the specific surface area of the silica sol particles as disclosed and/or at least suggested in the Watanabe et al reference.

Watanabe et al discloses concentrating the silica sol compositions. Applicants' claims set forth concentrating any one of the sols resulting from step (b), (c) or (d). No final concentration of the concentrated sol is set forth. The Watanabe et al reference discloses specific process concentration. Controlling the silica concentration through dilution and/or water removal is well known in the art and would have been inherent to or an obvious modification of the Watanabe et al process steps for control of the process within the specified concentrations.

9. Claims 1, 29-30, 32-35, 43, 47-48 and 50-53 are rejected under 35 U.S.C. 102(b) as being anticipated by Johansson et al, US 5,643,414. (column 2, line 33, to column 4, line 35; and examples) discloses methods of making sols. Patentees example 1 disclosure of "about 9.5" is deemed to read on the alkalizing to a pH of at least 10 claimed. The alkalizing step (d) is carried out by the addition of the sodium aluminates. The ranges of the  $\text{SiO}_2$  to  $\text{M}_2\text{O}$  ratios overlap those claimed. The surface area would have been expected to be inherent for the materials made by the same processes.

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

12. Claims 1, 26-35, 43-53 and 61-63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johansson et al, US 5,643,414, optionally in view of Brekau et al, US 5,458,812, Vossos, US 3,714,064, Chilton, US 3,560,400, and Mindick, 3,502,593.

Johansson et al '414 (column 2, line 33, to column 4, line 35; and examples) discloses methods of making sols. Johansson et al '414 (column 3, lines 13-19) discloses the pH for the particle growth is 8-11 and the  $\text{SiO}_2$  to  $\text{M}_2\text{O}$  ratio overlapping that claimed.

Johansson et al '414 (example 1) sets forth the sol formed has a pH of about 9.5 and the particles have a specific surface area of  $910 \text{ m}^2/\text{g}$ .

To the extent the Johansson et al '414 reference differs from the claims in the explicit recitation of step (d) to a pH of at least 10, some variation in the pH would have been expected in the Johansson et al '414 processes and applicants have not shown the added step of alkalizing to a pH of at least 10 to have criticality to the invention.

Johansson et al '414 (column 4, lines 25-27 ; and column 5, lines 58-59) further teaches the sols may be utilized in paper making processes having pH range of 4 to 10.

It would have been obvious to one of ordinary skilled in the art at the time of applicants' invention to employ a sufficient alkalization for the stabilization of the final

products since the Johansson et al '414 reference clearly contemplates pH values of up to 11 and  $\text{SiO}_2$  to  $\text{M}_2\text{O}$  ratios reading on applicants'  $\text{SiO}_2$  to  $\text{M}_2\text{O}$  ratios.

To the extent the Johansson et al '414 reference differs from claims 26-28, 44-46 and 61-63 in the concentrating the silica sols during or following the processing steps, Brekau et al, Vossos, Chilton, and Mindick disclose making silica sols and concentrating said sols by various methods for the advantages of reducing storage and shipping cost.

Furthermore, Vossos (columns 1 and 2, see also column 2, lines 61-62) teaches stable sols with a pH of 9 to 11 and surface areas in excess of  $600 \text{ m}^2/\text{g}$ . Chilton (column 3, lines 8-10) teaches the sols are have a silica soda ratio before or after concentration to correspond to a pH of 9-11. Brekau et al (column 4) teaches varying pH ranges up to 12, 11 and 10.5.

These references are combinable because they teach methods of making silica sols from acidic silicic acid and sodium silicate or metal hydroxide by particle growth. It would have been obvious to one of ordinary skilled in the art at the time of applicants' invention to employ a concentrating step after the alkalizing step in the Johansson et al '414 reference for the advantages of reducing storage and shipping cost.

Furthermore, It would have been obvious to one of ordinary skilled in the art at the time of applicants' invention to further alkalize the sols for stabilization within the art known pH ranges shown in the art.

### **Conclusion**

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 2003/0024671 is related to the instant application and is

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based on the same priority documents as the instant application but is a continuation of PCT/SE00/00821.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel S. Metzmaier whose telephone number is (703) 308-0451. The examiner can normally be reached on 9:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571) 272-1119. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

  
Daniel S. Metzmaier  
Primary Examiner  
Art Unit 1712

DSM